

GRANOVSKIY, G.I., doktor tekhn. nauk, prof.

Methods for the investigation and selection of cutting conditions  
for automatic production lines. Vest. mashinostr. 43 no.10:  
46-55 0 '63. (MIRA 16:11)

GRANOVSKIY, G.I., doktor tekhn.nauk, prof.

Durability of cutting tools as an initial parameter for  
calculating cutting conditions. Vest.mashinostr. 45  
no.8:59-64 Ag '65.

(MIRA 18:12)

GEL'FMAN, A. Ya.; GRANOVSKIY, G. L.; KHEMFETS, L. Ya.

Simple radiographic method for dactyloscopic investigations.

Atom. energ. 17 no.1:71 J1 '64.

(MIRA 17:7)

BERKOVICH, M.P.; TOMSON, G.V., redaktor; GRANOVSKIY, G.M., redaktor; BEKKER,  
O.G., tekhnicheskiy redaktor

[Tables for calculating fixed price of scrap iron and ferrous metal  
wastes according to the price-list introduced on January 1, 1950]  
Raschetnye tablitsy zagotovitel'noi stoimosti loma i otkhodov chernykh  
metallov po preiskurantu, vvedennomu s 1 yanvaria 1950 g. Moskva,  
Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1952. 36 p. [Microfilm] (MIRA 9:3)  
(Scrap metal industry)

GRANOVSKIY, GRIGORIY MOISEYEVICH

: Granovskiy, Grigoriy Moiseyevich

324

Balans metallurgicheskogo zavoda (Balance Sheet of the Metallurgical Plant) Moscow, Metallurgizdat, 1957. 184 p. 3,000 copies printed.

Ed.: Ryabin'kiy, B. Ya.; Ed. of Publishing House: Khutorskaya, Ye. S.; Tech. Ed.: Mikhaylova, V.V.

PURPOSE: This book is aimed at the administrative and bookkeeping personnel of the metallurgical industry. It is suggested that this book may also be of value to like personnel in other industries, as well as to VUZ and technical school students.

COVERAGE: This book contains basic bookkeeping information necessary to analyze the balance sheets of metallurgical and other plants. For details see T/C. No personalities are mentioned.

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AVAILABLE: Library of Congress

GO/ksv

6/30/58

Card 5/5

GRANOVSKIY, G.M.

"Production accounting and calculations in industries manufacturing refractory materials" by I.N. Perlov. Reviewed by G.M. Granovskii. Ogneupory 22 no.11:527-528 '57. (MIRA 11:1)

(Refractory industry--Accounting)

(Perlov, I.N.)

SKORUBSKIY, Nikolay Ivanovich; KIRZHNER, D.M., prof., retsenzent; SOSEDOV, O.O., gornyy inzh., retsenzent; GRANOVSKIY, G.M., starshiy konsul'tant, red.; ARKHANGEL'SKAYA, M.S., red.izd-va; KARASEV, A.I., tekhn.red.

[Calculations for mines of enterprises engaged in ferrous metallurgy] Kal'kuliatsiia na rudnikakh chernoi metallurgii. Izd.3., perer. i dop. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 189 p. (MIRA 12:4)

1. Moskovskiy gornyy institut (for Kirzhner). 2. Upravleniye bukhgalterskogo ucheta Ministerstva finansov SSSR (for Granovskiy). (Mining industry and finance)

GRANOVSKIY, Grigoriy Moiseyevich; FEL'DMAN, Yakov Iosifovich; CHURILOVICH,  
L.M., red.; EVENSON, I.M., tekhn.red.

[Accounting in ferrous metals plants] Bukhgalterskii uchet na  
zavodakh chernoi metallurgii. Moskva, Gos.nauchno-tekhn.isd-vo  
lit-ry po chernoi i tsvetnoi metallurgii, 1960. 111 p.

(MIRA 13:12)

(Steel industry--Accounting)

VALUYEV, Aleksandr Iosifovich; SKOROKHODOV, Arkadiy Aleksandrovich;  
GRANOYSKIY, G.M., retsenzent; LUCHINSKIY, Sh.P., red.;  
LUCHKO, Yu.V., red.isd-va; TURKINA, Ye.D., tekhn.red.

[Accounting and analysis of the administrative operations of  
a metallurgical plant] Bukhgalterskii uchet i analiz kho-  
ziaistvennoi deiatel'nosti metallurgicheskogo zavoda. Sverdlovsk,  
Gos.nauchno-tekhn.isd-vo lit-ry po chernoi i tsvetnoi metallurgii.  
Sverdlovskoe otd-nie, 1960. 447 p. (MIRA 14:3)  
(Steel industry--Accounting)

GARETOVSKIY, Nikolay Viktorovich; GRANOVSKIY, G., red.; LEBEDEV, A.,  
tekh. red.

[Enterprise fund; new order for its formation and utilization]  
Fond predpriatiia; novyi poriadok obrazovaniia i ispol'zova-  
niia. Moskva, Gosfinizdat, 1961. 43 p. (MIRA 15:2)  
(Industrial management)

PERLOV, Isaak Naumovich; GRANOVSKIY, G.M., red.

[Calculation and analysis of the economic activity of a refractories] Uchet i analiz khoziaistvennoi deiatel'nosti ognepornogo zavoda. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 335 p. (MIRA 15:1)  
(Refractories industry--Accounting)

GRANOVSKIY, Grigoriy Moiseyevich; MAZURKEVICH, M., red.; LEBEDEV, A.,  
tekhn. red.

[Methods for checking the reliability of accounting reports]  
Metody proverki dostovernosti bukhgalterskoi otchetnosti; v  
pomoshch' finansovym i bankovskim rabotnikam. Moskva, Gos-  
finizdat, 1962. 138 p. (MIRA 17:1)



SKORUBSKIY, Nikolay Ivanovich; GRANOVSKIY, G.M., otv. red.;  
GOLUBEYATNIKOVA, G.S., red. izd-va; SHKLYAR, S.Ya., tekhn. red.

[The balance sheet of a mining enterprise] Balans gornogo pred-  
priiatiia. Moskva, Gosgortekhnizdat, 1962. 147 p.  
(MIRA 15:6)

(Mineral industries—Accounting)

KARAKOZ, Ivan Ivanovich; GRANOVSKIY, G.M., red.; TELEGINA, T.,  
tekhn. red.

[Daily economic analysis of the work of enterprises]  
Eshednevnyi ekonomicheskii analiz raboty predpriatii.  
Moskva, Gosfinizdat, 1963. 86 p. (MIRA 16:12)  
(Industrial management) (Accounting)

BASMANOV, Ivan Antonovich; GRANOVSKIY, G.M., otv. red.

[Problems in accounting for production expenditures]  
Voprosy ucheta zatrat na proizvodstvo. Moskva, Izd-vo  
"Finansy," 1964. 106 p. (MIRA 17:4)

GRANOVSKIY, Iosif Froymovich; YUDIN, Petr Alekseyevich; ATTOPOVICH,  
M. M., ~~redaktor~~ literaticheskiy redaktor

[Experience of sinter-machine operators at the A.K.Serov factory] Opyt aglomeratchikov zavoda im. A.K.Serova. Moskva. Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 40 p. (MIRA 8:7)  
(Sintering)

Distr: 4E2c

Activated agglomerate of magnetic iron ore. V. A. Sushkin, M. Kh. Lukashenko, I. E. Gerasimov, and P. V. Mityakov. Sbornik Nauch. Trudov 1953, No. 4, 65-129. Sverdlovsk. 1953.  
 USSR No. 9717. By spraying a fine spray of water on a layer of Fe ore during agglomeration, the rate of the action of C and H<sub>2</sub>O, and reduces the consumption of the FeO<sub>2</sub> to FeO, producing a more porous agglomerate with greater surface area. The consumption of C varies from 17.3% of the charge for 5% of coke fines to 27-30% for 18% of coke fines. For 5-contg iron ore, with an input of 5-20% of coke fines the consumption of C varies from 2 to 14.6%, depending on the vacuum, the degree of reduction of the iron oxides, and the rate of spraying. The formation of up to 40-60% of ferrous silicate in activated agglomerate contg. baked-in C is compatible with high chem. activity and mechanical strength. Use of the water spray increased the capacity of the sintering plant by 55-85%. Use of the activated agglomerate in the blast furnace increased the capacity by 14% and decreased coke consumption by 1.8%.

GRANOVSKIY, L.V.

Method of spectral analysis of complicated mixtures.  
B. Ya. Dain, L. V. Granovskii and R. S. Puzenkin. *J. Gen. Chem.* (U. S. S. R.) 5, 1003 7(1935). Standards for the quant. spectroscopic analysis of the system Mn-Co and the effect of impurities, such as chlorides of Na, K, Ba, Al, Ni and Fe, singly or in pairs, on these standards, are indicated. S. I. Mladetsky

7

DETAILS OF LITERATURE CLASSIFICATION

**GRANOVSKY, LV.**

PRELIMINARY AND PROGRESSIVE INDEX

7

Qualitative spectral analysis of manganese ores. B.  
Ya. Dain, L. V. Granovskiy and E. S. Puzrenkin. Ber.  
Inst. phys. Chem. Akad. Wiss. Ukr. S. S. R. 5, 267-73  
(1930); cf. C. A. 30, 9001. Tabulated measurements of  
wave lengths in the green ultraviolet portion of the arc  
spectrum show that Be can be identified by the lines of  
3131.1, 3130.4, 2650.9, 2650.4 Å., 2 lines of higher wave  
lengths being covered by Mn-lines; Ti lines of 3372.6-  
3240.4 Å. are not obscured by Mn or Fe. After elimina-  
tion of Fe by the Rute method Co is identified by the line  
of 5206.5 Å. and Ni by the lines of 5470.9, 5081.1,  
4714.4, 3619.4, 3524.5, 3515.1, 3414.8, 3380.0 Å. Elimina-  
tion of Mn as MnO<sub>2</sub> permits the identification of Cr  
and Mn

J. G. Tolpin

180T72

USSR/Metals - Analysis, Slags

Nov 50

"Fluoride Method for Determination of Calcium Oxide in the Open-Hearth and Blast-Furnace Slags," I. V. Granovskiy, F. G. Druzhinin, Metallurgical Plant Iment I. V. Stalin

"Zavod Lab" No 11, pp 1304-1307

Method, where sodium fluoride is used during slag-dissolving process, shortens anal time to 20-25 min. Possibility has been established for using porcelain instead of platinum dishes. Advantage of method is possibility of Ca detn from sep sample, including

180T72

USSR/Metals - Analysis, Slags (Contd)

Nov 50

detn in insol silicates, which, in regular course of anal, require long fusing operation. Accuracy is quite satisfactory and amounts to  $\pm 2-3\%$  of quantity to be detd.

180T72



"Solubility of Open'Hearth and Blast-Furnace Slags and Its Use in the Rapid Analysis of Slags." Cand Chem Sci, Dnepropetrovsk State U, Dnepropetrovsk, 1954. (RZhKhim, No 2, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (13)  
SO: Sum. No. 598, 29 Jul 55

USSR/Chemistry - Spectral analysis

Card 1/1      Pub. 43 - 68/97

Authors : Granovskiy, I. V., and Kuz'mina, N. P.

Title : Spectral analysis of open-hearth and blast-furnace slag from solutions

Periodical : Izv. AN SSSR. Ser. fiz. 12/2, page 285, Mar-Apr 1954

Abstract : A method was developed for spectral analysis of open-hearth and blast-furnace slag by converting the latter into a solution. Results obtained by this spectral analysis method are briefly described. One USSR reference (1950).

Institution : The I. V. Stalin Metallurgical Plant, Stalinsk

Submitted : .....

Category : USSR/Optics - Optical Methods of Analysis. Instruments

K-7

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 5166

Author : Granovskiy, I.V., Kuz-mina, N.P.

Title : Spectral Analysis of Blast-Furnace and Open-Hearth Slags in Solutions

Orig Pub : Zavod. laboratoriya, 1954, 20, No 4, 436-440

Abstract : No abstract

Card : 1/1

GORSHKOV, G., tekhnik (Sverdlovsk); GRISHCHENKO, E. (Aktyubinsk);  
 GRANOVSKIY, L., instruktor; IVANNIKOV, A.; BERDYUGIN, V., gornyy  
 inzh.; KIL'DIBEKOV, V.; GORELIK, M., inzh.; ATKOCHAYTIS, Ye.  
 [Atkocaitis, E.] (Vil'nyus); CHERTILIN, V. (Bavly, Tatarskaya ASSR);  
 DZHURAYEV, U. (Fergana)

Exchange of news and practice. Izobr.i rats. no.2:18-19 F '62.  
 (MIRA 15:3)

1. Ural'skiy zavod tyazhelogo mashinostroyeniya (for Gorshkov).
  2. Predsedatel' soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov remontno-mekhanicheskogo zavoda "Bol'shevik", g. Aktyubinsk (for Grishchenko). 3. Tsentral'nyy Sovet Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov (for Granovskiy).
  4. Predsedatel' oblastnogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov (for Ivannikov). 5. Vneshtatnyy konsul'tant oblastnogo konsul'tatsionnogo punkta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov, g. Kemerovo (for Berdyugin). 6. Zaveduyushchiy otdelom promyshlennosti gazety "Leninskiy put'", g. Slobodskoy Kirovskoy obl. (for Kil'dibekov). 7. Otdel kapital'nogo stroitel'stva predpriyatiya teplovykh setey upravleniya energetiki Soveta narodnogo khozyaystva BSSR, g. Minsk (for Gorelik).
- (Technological innovations)

ABDULLAYEV, A. A.; GRANOVSKIY, M. S.; NABIYEV, I. A.; FEYDER, A. M.

Transmitting code-pulse telemetering device. Priborostroenie  
no.10:14-15 0 '62. (MIRA 15:10)

(Telemetering)

GRANOVSKIY, M.S.

Increasing the interference proofness of discrete telemechanical  
communications by means of a two-threshold receiver. Za tekhn. prog.  
3 no.9:5-8 S '63. (MIRA 16:10)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Azizbekova.

GRANOVSKIY, M.S.

Static indicator of even numbers. Izv. vys. ucheb. zav.; neft' i  
gaz 6 no.2:98-100 '63. (MIRA 16:5)

1. Azerbaydzhanskiy institut nefti i khimii imeni M.Azizbekova.  
(Oil fields--Electronic equipment) (Remote control)

GRANOVSKIY, M.S.

Optimal threshold reception of frequency combination codes. Izv.  
vys.ucheb.zav.; neft' i gaz 6 no.9:93-94. '63.

(MIRA 17:2)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Azizbekova.



L 62748-65 EWT(d) Pac-4/Pae-2/Pj-4 GS

ACCESSION NR: AT5013037

UR/0000/64/002/000/0074/0077

AUTHOR: Nabiyev, I. A. (Baku); Granovskiy, M. S. (Baku)

TITLE: Chain-ring coding method

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam  
elektricheskikh izmereniy. 4th, Novosibirsk, 1964. Avtomaticheskii kontrolyu i  
elektricheskikh izmereniy, trudy konferentsii, Novosibirsk, 1964, no. 4

avtomaticheskikh informatsionnykh sistem. Sistem. avtomaticheskogo kontrolya i  
elektricheskikh izmereniy, neelektricheskikh velichin, 4th, Novosibirsk, 1964, no. 4  
measuring techniques, transactions of the conference, v. 2. Theory of  
information measurement systems. Automatic control systems. Electrical  
measurement of nonelectrical quantities). Novosibirsk, Redizdat Sib. ord.  
AN SSSR, 1964, 74-77

TOPIC TAGS: error correcting code, chain ring code

ABSTRACT: A coding method is considered which adds a correcting ability to the binary code without many adjoined symbols; this is a general constructive method for t-error-correcting codes. The minimum code distance is  $d \approx \log_2 b$ , where

Card 1/2

L 62748-65

ACCESSION NR: AT5013037

b is the number of pulse indicants. The method provides this number of correctible errors:

b =	2	4	8	16	32	64	128
d =	1	2	3	4	5	6	7
t =	0	0	1	1	2	2	3

The method of conversion of the source binary code into the new code shows that an  $(m+1)$ -th group repeats the first group; hence, the code chain is a closed ring. Characteristics of the codes constructed by the new method are briefly considered. The necessity for many pulse indicants is noted as a disadvantage of the method. Orig. art. has: 1 figure, 4 formulas, and 2 tables.

ASSOCIATION: none

SUBMITTED: 17Nov64

ENCL: 00

SUB CODE: DP

NO REF SOV: 000

OTHER: 003

Card 2/2

ROZHKO, F.; GRANOVSKIY, F.

Visual aids for farm mechanization schools. Prof.-tekh.  
obr. 19 no.8:25 Ag '62. (MIRA 15:12)  
(Farm mechanization—Study and teaching)

NEYELOV, O.; GENDE-ROTE, V.; ZEL'MA, G.; RUYKOVICH, V.; STANOVOV, A.;  
GRANOVSKIY, N.; RED'KIN, M.; KHEBNIKOV, A.; PORTER, L.; KOPOSOV, G.

Let's talk about your snapshots. Sov.foto 23 no.1:42-45 Ja '63.  
(MIRA 16:5)

1. Chlen moskovskoy fotosektsii Soyuza zhurnalistov SSSR (for Neyelov).
2. Fotokorrespondenty TASS (for Gende-Rote, Granovskiy, Red'kin, Porter).
3. Fotokorrespondenty zhurnala "Sovetskaya zhenshchina" (for Zel'ma, Stanovov).
4. Fotokorrespondent zhurnala "Sovetskiy Soyuz" (for Ruykovich).
5. Predsedatel' Moskovskogo fotokluba (for Khebnikov).
6. Fotokorrespondent zhurnala "Ogonek" (for Koposov).

(Photography)

GRANOVSKIY, N.Ye., inzh.

Use of polymers in the Moscow Locomotive Repair Plant. Zhel.  
dor. transp. 46 no.5:78-81 My '64. (MIRA 18:2)

KHRISANOV, A.G., inzh.; GRANOVSKIY, N.Ye., inzh.

Reliability of electric trains in operation. Zhel. dor. transp.  
46 no.8:38-41 Ag '64. (MIRA 17:11)

1. Nachal'nik Moskovskogo lokomotivoremontnogo zavoda (for Khrisanov).

GRANDOVSKIY, V.G.

BENESHEVICH, I.I., kandidat tekhnicheskikh nauk; BOGIN, N.M., kandidat tekhnicheskikh nauk; BYKOV, Ye.I., inzhener; VLASOV, I.I., kandidat tekhnicheskikh nauk; GRITSEVSKIY, M.Ye., inzhener; GRUBER, L.O., inzhener; GURVICH, V.G., inzhener; DAVYDOV, V.N., inzhener; YER-SHOV, I.M., kandidat tekhnicheskikh nauk; ZASORIN, S.N., kandidat tekhnicheskikh nauk; IVANOV, I.I., kandidat tekhnicheskikh nauk; KRAUKLIS, A.A., inzhener; KROTOV, L.B., inzhener; LAPIN, V.B., inzhener; LASTOVSKIY, V.P., dotsent; LATUNIN, N.I., inzhener; MARKVARDT, K.G., professor, doktor tekhnicheskikh nauk; MAKHAYLOV, M.I., professor, doktor tekhnicheskikh nauk; NIKANOROV, V.A., inzhener; OSKOLKOV, K.H., inzhener; OKHOSHIN, L.I., inzhener; PARFENOV, K.A., dotsent; kandidat tekhnicheskikh nauk; PERTSOVSKIY, L.M., inzhener; POPOV, I.P., inzhener; PORSHNEV, B.G., inzhener; RATNER, M.P., inzhener; ROSSIYEVSKIY, G.I., dotsent, kandidat tekhnicheskikh nauk; RYKOV, I.I., kandidat tekhnicheskikh nauk; RYSHKOVSKIY, I.Ya., dotsent, kandidat tekhnicheskikh nauk; RYABKOV, A.Ya., professor [deceased]; TAGER, S.A., kandidat tekhnicheskikh nauk; KHAZEN, M.M., professor, doktor tekhnicheskikh nauk; CHERNYSHEV, M.A., doktor tekhnicheskikh nauk; MBIN, L.Ye., professor, doktor tekhnicheskikh nauk; YURENEV, B.N., dotsent; AKSENOV, I.Ya., dotsent, kandidat tekhnicheskikh nauk; ARKHANGEL'SKIY, A.S., inzhener; BARTENEV, P.V., professor, doktor tekhnicheskikh nauk; BERNGARD, K.A., kandidat tekhnicheskikh nauk; BOROVY, N.Ye., dotsent, kandidat tekhnicheskikh nauk; BOGDANOV, I.A., inzhener; BOGDANOV, N.K., kandidat tekhnicheskikh nauk; VINNICHENKO, N.G., dotsent, kandidat ekonomicheskikh nauk;  
(Continued on next card)

HEMESHEVICH, I.I.----(continued) Card 2.

VASIL'YEV, V.F.; GONCHAROV, N.G., inzhener; DERIBAS, A.T., inzhener;  
 DOBROSHEL'SKIY, K.M., dotsent, kandidat tekhnicheskikh nauk; DLUGACH,  
 B.A., kandidat tekhnicheskikh nauk; YEFIMOV, G.P., kandidat tekhnicheskikh nauk;  
 ZEMBLINOV, S.V., professor, doktor tekhnicheskikh nauk; ZABELLO, M.L., kandidat tekhnicheskikh nauk; IL'IN, K.P., kandidat tekhnicheskikh nauk; KARWENIKOV, A.D., kandidat tekhnicheskikh nauk; KAPLUN, F.Sh., inzhener; KANSHIN, M.D.; KOCHNEV, F.P., professor, doktor tekhnicheskikh nauk; KOGAN, L.A., kandidat tekhnicheskikh nauk; KUCHURIN, S.F., inzhener; LEVASHOV, A.D., inzhener; MAKSIMOVICH, B.M., dotsent, kandidat tekhnicheskikh nauk; MARTYNOV, M.S., inzhener; MEDDEL', O.M., inzhener; NIKITIN, V.D., professor, kandidat tekhnicheskikh nauk; PADNYA, V.A., inzhener; PANTELAYEV, P.I., kandidat tekhnicheskikh nauk; PETROV, A.P., professor, doktor tekhnicheskikh nauk; POVOZHENKO, V.V., professor, doktor tekhnicheskikh nauk; PISKAREV, I.I., dotsent, kandidat tekhnicheskikh nauk; SERGUYEV, Ye.S., kandidat tekhnicheskikh nauk; SIMONOV, K.S., kandidat tekhnicheskikh nauk; SIMANOVSKIY, M.A., inzhener; SUYAZOV, I.G., inzhener; TALDAYEV, F.Ya., inzhener; TIKHONOV, K.K., kandidat tekhnicheskikh nauk; USHAKOV, N.Ya., inzhener; USPENSKIY, V.K., inzhener; FEL'DMAN, E.D., kandidat tekhnicheskikh nauk; FERAPONTOV, G.V., inzhener; KHOKHLOV, L.P., inzhener; CHERNOMORDIK, G.I., professor, doktor tekhnicheskikh nauk; SHAMAYEV, M.F., inzhener; SHAFIRKIN, B.I., inzhener; YAKUSHIN, S.I., inzhener; GRANOVSKIY, P.G., redaktor; TISHCHENKO, A.I., redaktor; ISAYEV, I.P., dotsent, kandidat tekhnicheskikh nauk, redaktor; KLIMOV, V.F., dotsent kandidat tekhnicheskikh nauk, redaktor;

(Continued on next card)



BENESHEVICH, I.I.--- (continued) Card 3.

nauk, redaktor; MARKOV, M.V., inzhener, redaktor; KALININ, V.K.,  
inzhener, redaktor; STEPANOV, V.N., professor, redaktor; SIDOROV, N.I.,  
inzhener, redaktor; GHEONIMUS, B.Ye., kandidat tekhnicheskikh nauk,  
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spravochnik shelesnodorozhnika. Moskva, Gos. transp.shele-dor. izd-vo.  
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1. Chlen-korrespondent Akademii nauk SSSR (for Petrov)  
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DLC: Slavic unclass.

SO: SOVIET TRANSPORTATION AND COMMUNICATIONS, A BIBLIOGRAPHY, Library of Congress Reference Department, Washington, 1952, Unclassified.

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GRANOVSKIY, Roman Grigor'yevich, professor; PINCHUK, G.A., kandidat  
tekhnicheskikh nauk, redaktor; KHITROV, P.A., tekhnicheskii redaktor

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(Boilers)

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Natural gas as fuel for boiler plants. Trudy MIIT no.125:149-165  
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GRANOVSKIY, S.A.

KOVALEV, N.N., laureat Stalinskoy premii; ANOSOV, F.V.; BUGRIN, S.K.;  
GARKAVI, Yu.Ye.; GRANOVSKIY, S.A.; ORGO, V.M.; ORLOV, I.V.; USTINOV,  
B.M.; GAMZE, Z.M., laureat Stalinskoy premii, dots., retsenzent

[New turbines at the Dnieper Hydroelectric Power Station] Novye  
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N.N.Kovaleva. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.  
lit-ry, 1951. 127 p. (MIRA 11:5)

(Dnieper Hydroelectric Power Station)  
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FITERMAN, Ya.P.; GRANOVSKIY, S.A., redaktor; VORONETSKAYA, L.V.,  
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(Hydraulic turbines) (MIRA 8:3)



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Min of Higher Education USSR, Leningrad, 1955. (KL, No 8, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical  
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GRANOVSKIY, S.A., kandidat tekhnicheskikh nauk.

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(Hydraulic turbines)

GRANOVSKIY, S.A.

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[Hydroturbines and their adjustment] Gidroturbiny i ikh regulirovanie. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 349 p. (MIRA 10:10)  
(Turbines)

EDEL', Yuriy Udovich; VAKHRAMEYEV, B.A., inzh., retsenzent;  
GRANOVSKIY, S.A., kand. tekhn. nauk, red.; MITARCHUK,  
G.A., red. izd-va; SHCHETININA, A.V., tekhn. red.

[Bucket hydroturbines; theory, study, calculations] Kov-  
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skva, Mashgiz, 1963. 206 p. (MIRA 16:5)  
(Waterwheels)

GRANOVSKIY, S.A., kand. tekhn. nauk

Development of hydraulic turbine designs in the Leningrad Metal-  
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11 no.3:10-14. Apr '65. (MIRA 18:6)

GRANOVSKIY, S.A., kand. tekhn. nauk

Turbines of the Krasnoyarsk Hydroelectric Power Station.

[Trudy] LMZ no.10:15-23 '64.

(MIRA 18:12)



LEVITSKAYA, B.G., kandidat meditsinskikh nauk; GRANOVSKIY, S.G. (Khar'kov)

Examination of the capacity for work in coronary insufficiency.  
Vrach.delo no.8:859-861 Ag '57. (MLRA 10:8)

1. Ukrainskiy tsentral'nyy nauchno-issledovatel'skiy institut  
ekspertisy trudosposobnosti i organizatsii truda invalidov  
(CORONARY ARTERIES--DISEASES)  
(DISABILITY EVALUATION)

SOV/137-57-10-19033

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 86 (USSR)

AUTHORS: Anisiforov, V.P., Granovskiy, S.P., Vasil'chikov, M.V.

TITLE Helical Rolling of Round Periodically Recurrent Profiles, Balls, and Gears (Poperechno-vintovaya prokatka kruglykh periodicheskikh profiley, sharov i shesteren)

PERIODICAL: V sb.: Ratsionalizatsiya profiley prokata, Moscow, Profizdat, 1956, pp 296-318

ABSTRACT: The TsNIITMash has developed a production process for the rolling (R) of round periodically recurrent shapes. Appx. 10-30% saving of metal has been attained in this way. The R is performed by three rolls, tapered or disc-type, at an angle of  $120^{\circ}$  to each other in the working stand of the mill. As the billet advances, the rolls converge and separate in accordance with the shape of a repeater guide, and the helical rolling process is performed. The use of longitudinal tension on the billet makes it impossible for porousness to develop in the axial zone, and this is confirmed by appropriate tests of the mechanical properties and structure. In addition, the fiber structure follows the external shape of the product. The R results in a rise in the

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Helical Rolling of Round Periodically Recurrent Profiles, Balls and Gears

mechanical properties and this makes it possible to increase the load on the product. A 2-roll helical rolling mill with helical pass grooves is used to produce balls 1-2" in diam for roller bearings, as well as the production of 40-80 mm milling balls. These mills are analogous to piercing mills for tubing. When used to manufacture ball-bearing balls, the output capacity of such a mill is 3 times as great as that of a horizontal upsetter and affords metal savings of 15-20%. In manufacturing milling balls, the labor involved is cut to a fifth or a sixth. In addition, a description of 2 industrial gear-R mills is presented. Gear manufacture by R makes for better metal in the gear crown, as the fibers of metal in the tooth are not cut but bent to comply with the tooth profile. The strength of the teeth is 50% higher than in milled gears.

S.G.

Card 2/2

GRANOVSKIY, S.P., kandidat tekhnicheskikh nauk; YEFANOV, V.I., inzhener;  
GROMOV, A.A., inzhener.

Steel ball rolling. Stal' 16 no.4:333-337 Ap '56. (MIRA 9:9)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tyazhelego mashinostroyeniya.  
(Rolling (Metalwerk) (Ball bearings)

ANISIFOROV, V.P., kandidat tekhnicheskikh nauk; GRANOVSKIY, S.P., kandidat tekhnicheskikh nauk.

Rolling ball bearings. Nauka i zhizn' 23 no.4:49-50 Ap '56.  
(Ball bearings) (Rolling (Metalwork)) (MIRA 9:7)

## PHASE I BOOK EXPLOITATION

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Smirnov, V. S.; Anisiforov, V. P.; Vasil'chikov, M. V.; Granovskiy, S. P.;  
Kazanskaya, I. I.; Kuz'min, A. D.; Mekhov, N. V.; Pobedin, I. S.

Poperechnaya prokatha v mashinostroyenii (Cross Rolling in the Machine-building Industry) Moscow, Mashgiz, 1957. 375 p. 4,500 copies printed.

Ed.: (title page): Tselikov, A. I., Corresponding Member of the USSR Academy of Sciences, and Smirnov, V. S., Doctor of Technical Sciences, Professor; Ed. (inside book): Kamnev, P. V.; Ed. of Publishing House: Leykina, T. L.; Tech. Ed.: Sokolova, L. V.; Managing Ed. of the Leningrad Branch of Mashgiz: Bol'shakov, S. A., Engineer.

PURPOSE: This book is intended for process engineers and machine designers engaged in the field of metalworking.

COVERAGE: The book contains a systematic discussion of the theory of cross rolling and helical cross rolling, and presents generalized conclusions from theoretical and experimental research work carried out, and experience gained in machine-building and metallurgical plants in the USSR. The cross-rolling processes, which are considered by the author as having wide potentialities, are currently used in several Soviet plants for the manufacture of bearing rolls and rollers,

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Cross Rolling in the Machine-building (Cont.)

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"APPROVED FOR RELEASE: 03/13/2001

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mill balls, bearing rings, bushings and various periodic shapes such as crankshafts. The ball- and gear-rolling processes developed by TsNIITMASH are considered a major Soviet achievement. Ball-rolling is said to be replacing the manufacture of balls by pressing, increasing productivity two to seven times, and saving 10 to 25 percent in expensive alloyed steel. Gear-rolling is a current development project in the USSR. Rolled-gears are reported to have been successfully produced to grade 2 accuracy, with a class 7-10 surface finish. Methods for determining rolling forces, stresses, moments and power, based on modern concepts of the theory of plasticity and strength of materials are discussed, and formulas derived. The author states that the mechanical properties of parts press formed, or machined from periodic rolled stock, are considerably higher than those made from conventional plain rolled stock, not to mention a 20 to 30 percent saving in material. The development of the theoretical principles and technological processes of cross-rolling and helical cross rolling in the USSR is said to have been carried on intensively since 1942. This theory was developed by V. S. Smirnov on the basis of experiments conducted at the Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute) and later at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute). The development of machinery and equipment for cross-rolling and helical cross rolling was supervised by A. I. Tselikov at the TsNIITMASH - Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya (Central Scientific Research Institute of Technology and Machinery).

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AVAILABLE: Library of Congress (TS 340.T 7447)

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GQ/fal  
30 August 1958

Increasing Labor Productivity in Machine Building (Voprosy povysheniya proizvoditel'nosti truda v mashinostroenii) Gosudarstvennoye nauch-tekh. izdat. mashinostroitel', literatury, Mosciw, 1957. 511 pp.

‡ (Table of Contents authors below)

This collection presents a comparative tech. and economic analysis of most effective methods and industrial processes for obtaining high labor productivity in machine building. Output may be stepped up by further standardization of machine tools, materials, and production methods; drawing on unused potentials. Covers all stages of planning and production as performed in modern plants of USSR, actual experience, and new methods are discussed.

ANISIFOROV, V. P., GRANOVSKIY, S. P., "Use of Die-Rolling Methods," p. 289.

SHOR, E. Romanovich. Prinsipy uchastiye: GRANOVSKIY, S.P., kand.tekhn. nauk; SON'KIN, M.A., kand.tekhn.nauk; SOLODUKHO, Ya.Yu., inzh.; KOZLOV, B.M., POLUKHIN, P.I., prof., doktor tekhn.nauk, retsen-sent; KOROLEV, A.A., red.; OZKRETSKAYA, A.L., red.izd-va; ISLENT'YE-VA, P.G., tekhn.red.

[New rolling mill processes] Novye protsessy prokatki. Moskva, Gos.nauchno-tekh.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 385 p. (MIRA 13:1)

1. Gosudarstvennyy proyektnyy institut Tyazhpromoelektrproyekt (for Solodukho).

(Rolling (Metalwork))

36

PHASE I BOOK EXPLOITATION

SOV/5799

Unkov, Ye.P., Doctor of Technical Sciences, Professor, Ed.

Sovremennoye sostoyaniye kuznechno-shtampovogochnogo proizvodstva (Present State of the Pressworking of Metals) [Moscow] Mashgiz, 1961. 434 p. 5000 copies printed.

Zd. of Publishing House: A.I. Sirotin; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on the Hot Working of Metals: S.Ya. Golovin, Engineer.

Title: Kuznechno-shtampovochnoye proizvodstvo v SSSR (The Pressworking of Metals in the USSR) by: A.V. Altykis, D.I. Berezhkovskiy, V.F. Volkovitskiy, I.I. Girsh (deceased), L.D. Gol'man, S.P. Granovskiy, N.S. Dobrinskiy, A.I. Zinin, S. L. Zlotnikov, A.I. Kagalovskiy, P.V. Lobachev, V.N. Martynov, Ye.N. Meshnin, G.A. Navrotsky, Ya.M. Okhrimenko, G.N. Rovinskiy, Ye.A. Stosha, Yu.L. Rozhdestvenskiy, N.V. Tikhomirov, Ye.P. Unkov, V.F. Shecheglov, and L.A. Shofman; Eds: Ye.P. Unkov, Doctor of Technical Sciences, Professor, and B.V. Rozanov.

Title: Kuznechno-shtampovochnoye proizvodstvo v ChSSR (The Pressworking of Metals in the Czechoslovak SR) by: S. Burda, F. Hrazdil, F. Drastik, F. Zlatohlavek

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Present State of the (Cont.)

SGU/5799

Z. Kejval, V. Krauz, F. Kupka, F. Majer, K. Marvan, J. Novák, J. Odchnal,  
K. Paul, B. Samer, M. Honz, J. Čátek, V. Šindler, and J. Šolc; Eds.:  
A. Neješna and M. Vlk.

PURPOSE: This book is intended for engineers and scientific personnel concerned  
with the pressworking of metals.

COVERAGE: Published jointly by Mashgiz and SNTL, the book discusses the present  
state of the pressworking of metals in the USSR and the Czechoslovak Socialist  
Republic. Chapters were written by both Soviet and Czechoslovak writers. No  
personalities are mentioned. There are 129 references: 98 Soviet, 16 English,  
8 German, 5 Czech, and 2 French.

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| Ch. X. The Manufacturing Process and Organization in the Stamping of Bodies at the Automobile Plant "National Enterprise (AZNP) Mladá Boleslav" [Z. Kojval, AZNP, Mladá Boleslav]   | 397 |
| Ch. XI. The Mechanization of Obsolete Enterprises as a Means of Increasing Labor Productivity [B. Šanner, Vítkovice Metallurgical Plant imeni Klement Gottwald, Ostrava]  | 410 |
| Ch. XII. The Initial Pressworking of FeAl Alloys and Large FeCrAl Castings [F. Majer and J. Holc, Scientific Research Institute of Iron, Prague].   |     |

Card 7/8

- TSELIKOV, A.I.; GRANOVSKIY, S.P.; YEFANOV, V.I.

New technological process for the manufacture of blanks for hollow  
car axles. Kuz. shtam. proizv. 3 no. 5:4-5 My '61. (MIRA 14:5)  
(Rolling (Metalwork)) (Car axles)

S/793/62/000/000/005/006  
A004/A126

AUTHORS: Granovskiy, S.P., Candidate of Technical Sciences, ~~Moscow, U.S.S.R.~~  
Mekhov, N.V., - Engineers

TITLE: Performing and studying piercing and simultaneous drawing of tubes  
on a laboratory three-high mill

SOURCE: Teoriya prokatki; materialy konferentsii po teoreticheskim voprosam  
prokatki. Moscow, Metallurgizdat, 1962, 701 - 710

TEXT: Tests were carried out at the VNIIMETMASH to study the possibilities  
of piercing sleeves on a three-high mill and to compare this process between two  
and three-high piercing mills. As a result of these tests, the process of pierc-  
ing sleeves on a three-high mill was for the first time mastered in the USSR.  
Hollow, water-cooled mandrels were used, which were hardsurfaced on their work-  
ing area, the contact time between mandrel and blank was 25 - 30 sec, sleeves of  
III X15 (ShKh15) carbon steel and 1X18H9T (1Kh18N9T) stainless steel 50 - 65 mm  
in diameter having a wall thickness ranging from 2.5 - 12 mm were pierced. The  
authors present data on the comparison between the surface quality of sleeves be-

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Performing and studying piercing and ....

S/793/62/000/000/005/006  
A004/A126

ing pierced on two-high and three-high mills and compare the nonuniformity in the wall thickness of sleeves produced on two-high with those of three-high mills. They investigate the power and force parameters of the piercing process and describe in detail the development and investigation of the process of simultaneous piercing and drawing of thick-walled tubes, piercing and rolling of profiled tubes and piercing and rolling of thin-walled tubes on three-high mills. There are 6 figures and 5 tables.

ASSOCIATION: VNIIMETMASH

Card 2/2

L 8854-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)/EWA(c) JD/HW

ACC NR: AP5026483

SOURCE CODE: UR/0286/65/000/019/0009/0009

INVENTOR: Granovskiy, S. P.; Pyatunin, A. I.; Yefanov, V. I.; Yakovlev, S. A.;  
Arutyunov, I. G.; Revunov, V. A.; Zemskov, A. A.; Shofman, L. A.

ORG: none

TITLE: Production of seamless tubes. Class 7, No. 175026. [Announced by All-  
Union Scientific Research and Design-Planning Institute of Metallurgical Equip-  
ment (Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut  
metallurgicheskogo mashinostroyeniya)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 9

TOPIC TAGS: tube, seamless tube, thin wall tube, light alloy tube, metal rolling

ABSTRACT: This Author Certificate introduces a method for making seamless tubes,  
e.g., light-alloy tubes from rolled, forged, or cast tube shells. To obtain thin-  
wall tubes of large diameter with precise dimensions and a clean surface, the tube  
shell is first hot rolled with expansion in a helical mill and then cold rolled  
with elongation in a helical rolling mill. [AZ]

SUB CODE: 13/ SUBM DATE: 12Feb64/ ATD PRESS: 4152

BVK  
Card 1/1

UDC: 621.774.3



I 24740-66 EWT(m)/EWA(d)/EWP(t)/EWP(k) LJP(c) JD/HW

ACC NR: AP6005280 (N) SOURCE CODE: UR/0413/66/000/001/0018/0018

INVENTOR: Granovskiy, S. P.

ORG: none

TITLE: Production of thin-walled seamless pipe by helical rolling,  
Class 7, No. 177397 18

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1,  
1966, 18

TOPIC TAGS: pipe, seamless pipe, pipe rolling, rolling, helical  
rolling

ABSTRACT: An Author Certificate has been issued describing a method  
for making thin-walled seamless pipe by helical rolling from a heavy-  
walled light-alloy billet in the hot condition; the billet is widened  
and stretch-rolled. In order to produce large-diameter pipe with in-  
ternal longitudinal ribs, the hot rolling is accomplished using a  
conical mandrel with longitudinal grooves, whose bottom is set at an  
angle slightly larger than that of the mandrel cone; the cold rolling  
is made with a cylindrical mandrel with longitudinal grooves in which  
the ribs are reduced in height and thickness by roller die plates.

SUB CODE: 13/ SUBM DATE: 07Jul64/

Card 1/1 UDC: 621.774.8

L 7841-66 EWT(1)/EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/EWP(b)

ACC NR: AP5028121 IJP(c) JD/GG/WH SOURCE CODE: UR/0048/65/029/011/2064/2067

AUTHOR: Kramarov, O.P.; Sholokhov, M.L.; Granovskiy, V.G.; Berberova, L.M.; Nikulina, V.P.

ORG: Rostov-on-the Don State University (Rostovskiy-na-Donu gosudarstvennyy universitet)

TITLE: Increase of the Curie point of ferroelectric materials by introduction of nonferroelectric dopants [Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-16 September 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2064-2067

TOPIC TAGS: ferroelectric material, solid solution, dopant, barium titanate, zirconium, copper, silicon, dielectric constant, dielectric relaxation, Curie point.

ABSTRACT: The temperature dependence of the dielectric constant of  $\text{BaTiO}_3$  and ferroelectric  $(\text{Ba}, \text{Sr})\text{TiO}_3$  and  $\text{Ba}(\text{Ti}, \text{Zr})\text{O}_3$  solid solutions containing up to 10 mole % of  $\text{CaTiO}_3$ ,  $\text{BaSiO}_3$ , or  $\text{CuTiO}_3$  ( $\text{CuCO}_3 + \text{TiO}_2$ ) was measured at  $10^3$  and  $10^6$  cycle/sec in order to determine whether relaxation processes are involved in the apparent increase of the Curie temperature to which these nonferroelectric dopants are known to give rise. In all cases the dielectric constant was independent of frequency and the temperature at which it reached its maximum increased with increasing dopant content. The measurements on the  $\text{BaTiO}_3$ -- $\text{BaSiO}_3$  system were repeated with particular attention to the purity of the materials, cp  $\text{BaTiO}_3$  synthesized by the oxalate method, cp  $\text{BaCO}_3$ .

Card 1/2

ACC NR: AP5028121

and semiconductor-grade  $\text{SiO}_2$  being employed. The Curie point of the cp  $\text{BaTiO}_3$  was higher than that of the less pure material, but it was raised still higher by addition of the pure  $\text{BaSiO}_3$ . It is concluded that relaxation processes are not involved, but that a true increase of the Curie point takes place. The ferroelectric nature of the dielectric constant maximum in the doped materials was confirmed by observation of the hysteresis loops. The addition of the nonferroelectric dopant lead in all cases to a broadening of the dielectric constant peak (diffusion of the phase transition) and in most cases to a reduction of the maximum value of the dielectric constant. The results are discussed briefly in terms of the theory of A.L.Khodakov and V.G.Granovskiy (Izv. vysh. uchebn. zaved, Fizika, No. 2, 118 (1962)). "Fictitious Curie points" are assigned to the dopants, from which their influence on the Curie point of the doped ferroelectric can be calculated. It is suggested that it may be possible to obtain ferroelectric solid solutions of nonferroelectric components homologous with  $\text{BaTiO}_3$ . It is not possible, however, to characterize the effect of a dopant by any single property of the added ion as, e.g., its polarizability. Further investigation is desirable. Orig. art. has: 1 formula and 5 tables.

SUB CODE: SS, EM

SUBM DATE: 00/

ORIG.REF: 007 OTH.REF: 002

nw

Card 2/2

GRANOVSKIY, V.I.; ROZANOVA, N.B.; MOISEYEVA, I.S.

Breakdown along the surface of a dielectric during the passage  
of current from the opposite side. Zhur. tekhn. fiz. 28 no.5:1108-1117  
My '58. (MIRA 11:6)

1. Lektrotekhnicheskiy institut im. L.I. Lenina, Moskva.  
(Dielectrics) (Electric insulators and insulation)

SOV/137-58-10-20563

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 31 (USSR)

AUTHORS: Kocho, V.S., ~~Granovskiy, V.I.~~, Ploshchenko, Ye.A.

TITLE: An Investigation of the Thermal Functioning of Open-hearth Furnaces in Which Compressed Air is Delivered in the Checker Port (Issledovaniye teplovoy raboty martenovskikh pechey, rabotayushchikh s podachey szhatogo vozdukha v golovki)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958, Nr 1, pp 112-116

ABSTRACT: 4000-4500 m<sup>3</sup> compressed air from blast-furnace turbo-blowers is delivered per hour into the ends of the gas tank of the 220-t ovens at the Voroshilovsk Metallurgical Plant. The employment of compressed air improves the fuel combustion process, thus making it possible to reduce the excess-air coefficient from 1.5-1.8 to 1.05-1.15. Heating of the gas checkers is increased by 100-150°C. The tank-lining life is increased from 80 to 200 heats, and dust loss is reduced. The slag pockets require cleaning every 280-350 instead of 130-160 heats. The rate of C burn-off during the finishing period is 8 to 15% greater. When compressed air is employed, the melting

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SOV/137-58-10-20563

An Investigation of the Thermal Functioning of Open-hearth Furnaces (cont.)

period is 20 minutes shorter, and the working period 13 minutes. The unit consumption of fuel, in conventional units, is 13% less. Delivery of compressed air makes it possible to maintain higher heat inputs and obtain higher output rates from the furnaces. The heat intake of the bath rises by 40-60% with an air consumption of 2000 m<sup>3</sup>/hr, and even more at 4500 m<sup>3</sup>/hr. In the second half of the furnace, heat absorption declines when air is supplied, sometimes going to values close to zero. For a 250-500-t furnace, the optimum compressed-air delivery is 3000-5000 m<sup>3</sup>/hr; the precise amount requires determination by experiment in each individual instance.

G.G.

1. Open hearth furnaces--Operation
2. Open hearth furnaces--Thermodynamic properties
3. Oxygen--Applications

Card 2/2

SOV/137-58-11-22083

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 36 (USSR)

AUTHORS: Kocho, V.S., Granovskiy, V.I., Ploshchenko, Ye. A.

TITLE: Heat Balances of 500 and 250-t Gas-fired Open-hearth Furnaces  
(Teplovyye balansy 500 i 250-t gazovykh martenovskikh pechey)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958,  
Nr 3, pp 52-56

ABSTRACT: 500 and 250-t furnaces are heated by a mixture of coke and blast-furnace gas with an average thermal load of  $36.8 \times 10^{10}$  and  $25.0 \times 10^{10}$  kcal/hr. The hearth areas of the furnaces are, respectively, 96.76 and 74.0 m<sup>2</sup>, steel (St) production being 8.65 and 6.75 t/m per day and heat time 12.4 and 10.33 hours. The necessary calculations and tables are provided. The input and a portion of the output side depend upon the batch. The fundamental heat losses of 500 and 250-t furnaces are approximately identical; they consist of carry-off of heat and combustion products (30% and 33%, respectively) and loss in the cooling elements (12.24% and 13.7%). The remaining losses (by radiation, through the brickwork, etc.) are of somewhat smaller magnitude but they are greater in the 250-t furnace in virtually all

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SOV/137-58-11-22083

# Heat Balances of 500 and 250-t Gas-fired Open-hearth Furnaces

cases. In accordance with the heat balances, the average unit consumption of conventional fuel is 123.6 kg/t for a 500- and 137 kg/t for a 250-t furnace. The greater efficiency of 500-t than of 250-t furnaces is due to the reduced heat loss per t of St, the better utilization of heat in the melting chamber, and the higher rate of steel production (by 50-65%).

V. G.

Card 2/2



GRANOVSKIY, V. I.

Sov/133/58-9-4/29

AUTHORS: Kocho, V. S. (Dr. Tech. Sciences Professor), Granovskiy, V. I.,  
(Engineer), and Ploshchenko, Ye. A. (Engineer)

TITLE: An Investigation of the Thermal Performance of a 500 Ton  
Open Hearth Furnace (Issledovaniye teplovoy raboty 500-t  
martenovskoy pechi)

PERIODICAL: Stal', 1958, Nr 9, pp 782-788 (USSR)

ABSTRACT: A study of the thermal performance of a 500 ton open  
hearth furnace at the Voroshilov Works was carried out and  
a comparison of some of the data obtained with corresponding  
data for 250 ton furnaces is given. The object of the in-  
vestigation was to obtain information on the possibilities  
of improving the furnace performance as well as to obtain  
some design data for 700-800 ton furnaces. The 500 and 250  
ton furnaces were lined with basic refractories (mean ser-  
vice life of chrome-magnesite roofs from 400 to 450 heats).  
The furnaces were fired with a mixture of coke oven and  
blast furnace gas carburized with fuel oil. Compressed air  
was supplied (from blast furnace blowers) to the flame.  
Material and thermal balances of the 500 ton furnace are

Card 1/4

Sov/133/58-9-4/29

An Investigation of the Thermal Performance of a 500 Ton Open Hearth Furnace

given in Tables 1 and 2 respectively. Heat absorption and the coefficient of utilization of heat were investigated using the method of "instantaneous reverse heat balance" which is based on measurements carried out during short time intervals. The dependence of the intensity of straight heat currents on the amount of compressed air supplied to the flame - Fig.1; the dependence of the coefficient of utilization of heat (A) and heat absorption (B) on the pressure under the roof during the individual smelting periods - Fig.2; the dependence of straight heat currents during the refining period on the coefficient of excess of air - Fig.3; the dependence of the coefficient of utilization of heat and coefficient of heat absorption on the thermal load, with a supply of compressed air of 4000 m<sup>3</sup>/hr, during the individual smelting periods - Fig.4; the dependence of the duration of melting period on the specific heat consumption and on the concentration of carbon after melt out at various thermal loads - Fig.5; the dependence of the duration of the melting period and specific heat consumption on the concentration of carbon after melt out at various thermal loads - Fig.6. On the basis of the results obtained optimum thermal operating

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Sov/133/58-9-4/29

An Investigation of the Thermal Performance of a 500 Ton Open Hearth Furnace

conditions for the 500 ton furnace were established (Table 3) which decreased the consumption of conventional fuel from 125 to 108 kg/ton at a duration of heats not exceeding 11.5 hours. In view of relatively lower heat losses per ton of smelted steel, the consumption of fuel in 500 ton furnaces is somewhat lower (15-20 kg of conventional fuel) than in 250 ton furnaces. The use of compressed air has a positive effect on the thermal work of the 500 ton furnace, as it permits decreasing the coefficient of excess air to 0.9-1.05. At thermal loads of 35-40 mil. k cal/hr an average 5000 m<sup>3</sup>/hr of compressed air is required (varying the supply according to thermal loads during the individual smelting periods from 4000 to 5500 m<sup>3</sup>/hr). On the basis of the results obtained it can be expected that the character of the distribution of thermal currents and heat exchange conditions in 700-800 ton furnaces under design will be approximately the same as

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Sov/133/58-9-4/29

An Investigation of the Thermal Performance of a 500 Ton Open Hearth Furnace

in 500 ton furnaces. A decrease in specific heat losses in 700-800 ton furnaces should somewhat improve the coefficients of the utilization and absorption of heat in comparison with 500 ton furnaces. There are 3 tables, 6 figures and 5 Soviet references.

ASSOCIATION: Kiyevskiy politekhnicheskii institut i zavod im. Voroshilova (Kiev Polytechnical Institute and the Works im. Voroshilov)

Card 4/4

KOCHO, V.S.; GRANKOVSKIY, V.I.; LISITSA, V.K.

Automatic regulation of the combustion process. Metallurg 9 no.6:  
15-17 Je '64. (MIRA 17:9)

KOCHO, V.S.; GRANKOVSKIY, V.I.; KOCHETKOV, Ye.A.; ZAKHAROVA, Ye.V.

Distribution of combustion products in open-hearth furnace  
regenerators. Izv. vys. ucheb. zav.; chern. met. 7 no.10:  
149-154 '64. (MIRA 17:11)

1. Kiyevskiy politekhnicheskii institut i Kommunariskiy metal-  
lurgicheskii zavod.

KOCHO, V.S.; GRANKOVSKIY, V.I.; PERELOMA, V.A.

Automatic pressure control in open-hearth furnaces. Izv.vys.  
ucheb.zav.; chern. met. 8 no.4:212-215 '65.

(MIRA 18:4)

1. Kiyevskiy politekhnicheskij institut.

24.7800 (1142, 1144)  
24.7900 (1162, 1055)

84994

S/048/60/024/010/003/033  
B013/B063

AUTHOR: Granovskiy, V. G.

TITLE: The Thermodynamics of Solid Solutions With Ferroelectric Properties

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,  
Vol. 24, No. 10, pp. 1184-1186

TEXT: The author tried to extend the results of the thermodynamic theory of barium titanate-like piezoelectric substances to the solid solutions of the respective substances with isomorphic ones. It was found that a solid solution with a concentration  $x_m$  has a number of extreme properties if  $a > 0$ : lowest coercive force, lowest spontaneous polarization, highest dielectric constant, greatest steepness of the reversible characteristic, aside from a number of extreme ferroelectric properties (Ref. 1). It was established at the same time that an increase of  $a$  with  $a > 0$  increases the maximum values of the mentioned physical quantities, or reduces the minimum values.  $a$  - constant of the solid solution, which determines the chemical composition of the latter. A quantitative checking of the

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The Thermodynamics of Solid Solutions With  
Ferroelectric Properties

84994  
S/048/60/024/010/003/033  
B013/B063

formulas derived for the physical quantities concerned was very difficult due to the fact that experimental data were scattered over disparate publications. Still, it appears possible to make a provisional evaluation of the dielectric properties of solid solutions on the strength of results obtained. In the case of a phase transition of the second order, however, no definite conclusions can already be drawn as to the dependence of the dielectric properties of solid solutions on composition, because the dependence of the coefficient  $\beta$  on the latter has not yet been clarified. The author thanks A. L. Khodakov for having supervised the investigation. The present paper was read at the Third Conference on Piezoelectricity which took place in Moscow from January 25 to 30, 1960. There are 1 figure and 6 references: 5 Soviet.

ASSOCIATION: Rostovskiy-na-Donu gos. univeristet  
(Rostov-na-Donu State University)

Card 2/2

L 15245-65 EWT(1)/EPA(s)-2/EEC(b)-2 Pt-10 IJP(c)/AFWL/ASD(a)-5/SSD/AS(tp)-2/  
ACCESSION NR: AR3010276 AFETR/ESD(gs)/ESD(t) S/0081/63/000/012/0061/0061

SOURCE: RZh. Khimiya, Abs. 12B381

AUTHOR: Granevskiy, V.G.

TITLE: The thermodynamics of solid solutions with a Perovskite-type structures which have piezoelectric properties

CITED SOURCE: Sb. Segnetoelektrike. Rostovsk. un-t, 1961, 48-54

TOPIC TAGS: solid solution, Perovskite, piezoelectric property, polarization, electrostriction, phase transformation

TRANSLATION: This work is a continuation of that described in abstract 12B380. Formulas are derived which describe the dependence of spontaneous polarization, coefficient of electrostriction and the jump of the coefficient of linear expansion during the transition from the non-piezoelectric to the piezoelectric state on the composition of the solid solution. An expression is also derived for the temperature of the phase transition when the manifold pressure is a function of the concentration and pressure. Calculated and experimental curves are given which show the dependence on the concentration of the

Card 1/2

L 15245-65

ACCESSION NR: AR3010276

ump of the coefficient of linear expansion during phase transition into (Ba, Sr)  $\text{TiO}_3$ .  
G. Liman

SUB CODE: TD

ENCL: 00

Card 2/2

S/139/62/000/002/018/028  
E039/E435

24.7700

AUTHORS:

Khodakov, A.L., Granovskiy, V.G.

TITLE:

On the thermodynamics of solid solutions with perovskite type structure possessing ferroelectric properties

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika.  
no.2, 1962, 118-124

TEXT: In the search for ferroelectric materials with optimum electrical characteristics it is often necessary to use solid solutions possessing ferroelectric properties. In the case of solid solutions of barium titanate with other titanates, stannates and zirconates, by substituting the ions of titanium and barium the structure of the crystal lattice can be changed and hence their electrical properties altered. By examining phase transitions of the first and second kind on the basis of the thermodynamic theory of the ferroelectric effect it is possible to obtain the concentration dependence of a series of electrical parameters of solid solutions possessing ferroelectric properties. The dependence of the temperature of the phase transition on